AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) [[An]] A plug-and-play imaging engine configured and dimensioned to fit within a predetermined form factor of an optical code reader having a housing and circuitry therein, said imaging engine comprising:

an imaging assembly including at least one image sensor;

at least one illumination assembly having at least one illuminating device, the at least one image sensor and the at least one illuminating device being provided on a substrate; and

an interface having at least one signal path configured for providing at least one control signal to the imaging assembly, wherein the at least one control signal is generated and transmitted to the interface of said plug-and-play imaging engine by said circuitry housed within said housing for operating said imaging assembly and at least one illumination assembly.

Claim 2. (Original) The imaging engine of claim 1, wherein the at least one signal path transfers the at least one control signal between the imaging assembly and circuitry of the optical code reader.

Claim 3. (Original) The imaging engine of claim 2, wherein the at least one signal path is selected from the group consisting of an electrical, an optical, and a wireless path.

Claim 4. (Original) The imaging engine of claim 1, wherein said imaging engine is an integrated circuit package.

Claim 5. (Original) The imaging engine of claim 1, wherein the at least one image sensor is configured for being positioned in an optical beam path of the optical code reader.

Claim 6. (Original) The imaging engine of claim 1, further comprising a transmissive optical element overlaying the outer surface of the substrate.

Claim 7. (Original) The imaging engine of claim 1, wherein said substrate is a semiconductor.

Claim 8. (Original) The imaging engine of claim 1, wherein the at least one illuminating device includes at least two light-emitting diodes providing at least two different output wavelengths.

Claim 9. (Original) The imaging engine of claim 1, wherein the substrate includes portions for placement of the image sensor and the illumination assembly, such that the image sensor and the illumination assembly are substantially flush with an outer surface of the substrate.

Claim 10. (Original) The imaging engine of claim 1, wherein the at least one illuminating device is selected from the group consisting of an LED, a semiconductor laser, and a flash module.

Claim 11. (Original) The imaging engine of claim 1, further comprising a targeting assembly, wherein the at least one signal path provides at least one control signal to the targeting assembly.

Claim 12. (Currently Amended) An optical code reading system for imaging an optical target, said system comprising:

an optical code reader; and

[[an]] a plug-and-play imaging engine having structure for removably connecting to the optical code reader, an interface for interfacing and communicating with internal circuitry of said optical code reader and for receiving at least one control signal from said internal circuitry when said imaging engine is connected to the optical code reader for operating said plug-and-play imaging engine, and an illumination assembly including at least one illuminating device.

Claim 13. (Original) The optical code reading system of Claim 12, wherein the at least one illuminating device includes a plurality of light-emitting diodes having an output of at least two different wavelengths, said illumination assembly communicating with circuitry of said optical code reader via said interface.

Claim 14. (Original) The optical code reading system of claim 12, wherein the imaging engine includes a transmissive optical element located on a face of said imaging engine.

Claim 15. (Original) The optical code reading system of claim 12, wherein said imaging engine is an integrated circuit package.

Claim 16. (Original) The optical code reading system of claim 12, wherein said imaging engine further includes at least one image sensor and a targeting assembly, said at least one image sensor and targeting assembly communicating with circuitry of said optical code reader via said interface.

Claim 17. (Original) The optical code reading system of claim 12, further comprising another imaging engine configured for being interchanged with the imaging engine.

Claim 18. (Currently Amended) A method for reading an optical code using an optical code reader having a housing and circuitry therein, said method comprising ~~the steps of~~:

placing a plug-and-play imaging engine having an interface within a form factor of the optical code reader, wherein the interface interfaces the plug-and-play imaging engine with said circuitry housed within the housing of the optical code reader;

aiming the optical code reader at the optical code;

activating the optical code reader to generate and propagate at least one control signal to the plug-and-play imaging engine from the circuitry for operating said imaging engine for generating at least one signal output from at least one illuminating device of the imaging engine, the at least one signal output is reflected by the optical code to produce at least one reflected signal;

impinging the at least one reflected signal onto an image sensor; and

processing the at least one reflected light signal to generate an output data signal.

Claim 19. (Original) The method of claim 18, wherein the step of activating the optical code reader includes the step of transmitting a control signal to an illumination assembly having the at least one illuminating device to generate and propagate the at least one signal output.

Claim 20. (Original) The method of claim 18, wherein at least the at least one illuminating device and the image sensor from an integrated circuit package.

Claim 21. (Currently Amended) An optical code reading kit, said kit comprising:

an optical code reader; and

at least two plug-and-play imaging engines configured and dimensioned for alternative placement within a form factor of the optical code reader, said at least two plug-and-play imaging engines having respective substrates, the substrates having interfaces for communicating with circuitry of said optical code reader, wherein the respective interfaces

include at least one signal path configured for providing at least one control signal to the substrate for operating said plug-and-play imaging engine within said form factor.

Claim 22. (Original) The optical code reading kit of claim 21, wherein each of said at least two plug-and-play imaging engines includes an illumination assembly having at least one illuminating device.

Claim 23. (Currently Amended) A method for changing an imaging engine in an optical code reader comprising ~~the steps of~~:

removing a first, plug-and-play imaging engine from the optical code reader by disconnecting said first, plug-and-play imaging engine from the optical code reader; and

~~connecting~~ interfacing a second, plug-and-play imaging engine to the optical code reader, wherein first and second plug-and-play imaging engines are dimensioned to fit within a substantially identical form factor of the optical code reader and ~~to interface~~ further wherein first and second plug-and-play imaging engines include an interface having at least one signal path configured for providing at least one control signal to the imaging engine, wherein the interface interfaces the plug-and-play imaging engine with circuitry of the optical code reader; wherein the circuitry of the optical code reader is configured for generating and transmitting the at least one control signal for operating said second plug-and-play imaging engine.

Claim 24. (Original) The method according to Claim 23, wherein each of the first and second plug-and-play imaging engines are integrated circuit packages having an illumination assembly including one illuminating device.

Claim 25. (Original) The method according to Claim 23, wherein each of the first and second plug-and-play imaging engines have a transparent overlay overlaying at least one surface thereof.

Claim 26. (Original) The method according to Claim 23, wherein each of the first and second plug and-play imaging engines are integrated circuit packages having an illumination assembly including a plurality of illuminating devices for emitting an output having at least two different wavelengths.

Claim 27. (Currently Amended) [[An]] A plug-and-play imaging engine, integrated circuit package comprising:

a substrate;

an image sensor disposed on said substrate;

an illumination assembly disposed on said substrate having at least one illumination device substantially flush with an outer surface of the substrate; [[and]]

an optical element overlaying the at least one illumination device; and

an interface having at least one signal path configured for providing at least one control signal to the substrate, wherein the interface is configured to interface the plug-and-play imaging engine with circuitry housed within an optical code reader for receiving at least one control signal from said circuitry for operating said image sensor and illumination assembly.

Claim 28. (Original) The package of claim 27, further comprising a targeting assembly having at least one illumination device substantially flush with the outer surface of the substrate.

Claim 29. (Original) The package of claim 27, wherein said package is configured and dimensioned to fit within a predetermined form factor of an optical code reader, and wherein said package is a plug-and-play component.

Claim 30. (Original) The package of claim 27, further comprising interface means for interfacing the image sensor and the illumination assembly with circuitry of an optical code reading system.